



DATA VALIDATION REPORT

Gold King Mine Release Incident LTM

SAMPLE DELIVERY GROUP: 680-120839-1

Prepared by

MEC^X
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I. INTRODUCTION

Task Order Title: Gold King Mine Release Incident LTM
Project No.: 20408.012.001.0285.00
Sample Delivery Group: 680-120839-1
EPA Project Manager: Steve Merritt
Weston Project Manager: Mark Blanchard
TDD No.: 0001/1510-02
Matrix: Water
QC Level: Stage 2A
No. of Samples: 8
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica - Savannah

Table 1. Sample Identification

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
A72_010816_1230 FILTERED	680-120839-12	Water	1/8/16 12:30 PM	200.7, 200.8, 245.1
A72_010816_1230 TOTALS	680-120839-11	Water	1/8/16 12:30 PM	200.7, 200.8, 245.1
GKM_GSTO-C_010516_1205 TOTALS	680-120839-7	Water	1/5/16 12:05 PM	200.7, 200.8, 245.1
GKM-GSTO-F_01052016_1300 TOTALS	680-120839-2	Water	1/5/16 1:00 PM	200.7, 200.8, 245.1
GSTI_122315_1415 FILTERED	680-120839-10	Water	12/23/15 2:15 PM	200.7, 200.8, 245.1
GSTI_122315_1415 TOTALS	680-120839-9	Water	12/23/15 2:15 PM	200.7, 200.8, 245.1
GSTO-C_122315_1300 TOTALS	680-120839-5	Water	12/23/15 1:00 PM	200.7, 200.8, 245.1
GSTO-F_122315_1230 TOTALS	680-120839-1	Water	12/23/15 12:30 PM	200.7, 200.8, 245.1

II. Sample Management

Anomalies regarding sample management are noted below. The samples were received within the temperature limits of 4°C ±2°C. The samples were received intact, on ice, and properly preserved. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted.

The following issues were noted:



- The COC contained one overwritten field without initials or dates. No qualifications were applied.
- The COCs did not list CLP sample IDs, and none were provided. The laboratory logged the samples per the location IDs on the COCs.
- The presence or absence of sample tags was not noted in the case narrative, and sample tags were not listed on the COCs.
- Samples were collected on December 23rd and January 5th and 8th but were not shipped to the laboratory until January 12th. No qualifications were required.
- Four other preserved site samples were received and are in hold status, as per the client.

**Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.



Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

**Qualification Code Reference Table**

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.



Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



III. Method Analyses

A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, 200.7, 200.8, 245.1— Metals and Mercury

Reviewed By: M. Cherny

Date Reviewed: January 18, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment (2015)*, *Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado (2015)*, *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, EPA Methods 200.7, 200.8, 245.1* and the *National Functional Guidelines for Inorganic Superfund Data Review (2010)*.

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Analytical Method Blanks: There were no detects reported in the method blanks.
- Laboratory Control Samples (LCS): The recoveries were within laboratory control limits of 85-115%.
- Laboratory Duplicates: There were no laboratory duplicates performed on a sample from this SDG.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on samples GSTI_122315_1415 and A72_010816_1230 for 200.7 and 200.8 dissolved analyses, as well as on samples GSTO-F_122315_1230 and A72_010816_1230 for the total 245.1 analysis. Recoveries are not evaluated when the sample results are greater than 4× the amount spiked. All applicable recoveries were within the control limits of 70-130% for 200.8 and 245.1 analytes and 75-125% for 200.7 analytes, with the exception of potassium and barium. Dissolved potassium was recovered above the control limits at 131% and 129% in sample GSTI_122315_1415; therefore, dissolved potassium detected in the site sample was qualified as estimated with a potential high bias (J+). Conversely, dissolved barium in sample A72_010816_1230 was recovered below the control limits at 47% and 59%; therefore, dissolved barium detected in the site sample was qualified as estimated with a potential low bias (J-). The site samples with acceptable recoveries for dissolved barium and potassium were not qualified for the outliers in another sample. RPDs were ≤20%.
- Post Digestion Spike (PDS): PDS analyses were not performed on a sample in this SDG.
- Serial Dilution: Serial dilution analyses were not performed.
- Field QC Samples: MEC^x evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^x used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
 - Field Duplicates: There were no field duplicate samples identified in this SDG.

Validated Sample Result Forms: 680-120839-1

Analysis Method 200.7 Rev 4.4

Sample Name GSTO-F_122315_1230 TOTALS

Matrix Type: Water

Lab Sample Name: 680-120839-1

Sample Date: 12/23/2015 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	62000	200	24	ug/L			
Calcium	T	7440-70-2	430000	5000	250	ug/L			
Iron	T	7439-89-6	250000	50	17	ug/L			
Magnesium	T	7439-95-4	22000	5000	330	ug/L			
Potassium	T	7440-09-7	2000	1000	17	ug/L			
Sodium	T	7440-23-5	4800	10000	4800	ug/L	U	U	

Sample Name GSTI_122315_1415 FILTERED

Matrix Type: Water

Lab Sample Name: 680-120839-10

Sample Date: 12/23/2015 2:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum, Dissolved	D	7429-90-5	12000	200	24	ug/L			
Calcium, Dissolved	D	7440-70-2	360000	500	25	ug/L			
Iron, Dissolved	D	7439-89-6	52000	50	17	ug/L			
Magnesium, Dissolved	D	7439-95-4	19000	500	33	ug/L			
Potassium, Dissolved	D	7440-09-7	2000	1000	17	ug/L	F1	J+	Q
Sodium, Dissolved	D	7440-23-5	2900	1000	480	ug/L			

Sample Name A72_010816_1230 TOTALS

Matrix Type: Water

Lab Sample Name: 680-120839-11

Sample Date: 1/8/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	3700	200	24	ug/L			
Calcium	T	7440-70-2	100000	500	25	ug/L			
Iron	T	7439-89-6	7300	50	17	ug/L			
Magnesium	T	7439-95-4	6800	500	33	ug/L			
Potassium	T	7440-09-7	1100	1000	17	ug/L			
Sodium	T	7440-23-5	3800	1000	480	ug/L			

Sample Name A72_010816_1230 FILTERED

Matrix Type: Water

Lab Sample Name: 680-120839-12

Sample Date: 1/8/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum, Dissolved	D	7429-90-5	550	200	24	ug/L			

Analysis Method 200.7 Rev 4.4

Calcium, Dissolved	D	7440-70-2	110000	500	25	ug/L
Iron, Dissolved	D	7439-89-6	3200	50	17	ug/L
Magnesium, Dissolved	D	7439-95-4	7000	500	33	ug/L
Potassium, Dissolved	D	7440-09-7	1100	1000	17	ug/L
Sodium, Dissolved	D	7440-23-5	4600	1000	480	ug/L

Sample Name GKM-GSTO-F_01052016_1300 TOTALS **Matrix Type:** Water

Lab Sample Name: 680-120839-2 **Sample Date:** 1/5/2016 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	92000	200	24	ug/L			
Calcium	T	7440-70-2	440000	5000	250	ug/L			
Iron	T	7439-89-6	360000	50	17	ug/L			
Magnesium	T	7439-95-4	29000	5000	330	ug/L			
Potassium	T	7440-09-7	2000	1000	17	ug/L			
Sodium	T	7440-23-5	4800	10000	4800	ug/L	U	U	

Sample Name GSTO-C_122315_1300 TOTALS **Matrix Type:** Water

Lab Sample Name: 680-120839-5 **Sample Date:** 12/23/2015 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	370	200	24	ug/L			
Calcium	T	7440-70-2	460000	500	25	ug/L			
Iron	T	7439-89-6	580	50	17	ug/L			
Magnesium	T	7439-95-4	17000	500	33	ug/L			
Potassium	T	7440-09-7	2100	1000	17	ug/L			
Sodium	T	7440-23-5	5600	1000	480	ug/L			

Sample Name GKM_GSTO-C_010516_1205 TOTALS **Matrix Type:** Water

Lab Sample Name: 680-120839-7 **Sample Date:** 1/5/2016 12:05:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	310	200	24	ug/L			
Calcium	T	7440-70-2	450000	500	25	ug/L			
Iron	T	7439-89-6	660	50	17	ug/L			
Magnesium	T	7439-95-4	17000	500	33	ug/L			
Potassium	T	7440-09-7	2100	1000	17	ug/L			
Sodium	T	7440-23-5	5500	1000	480	ug/L			

Analysis Method 200.7 Rev 4.4

Sample Name GSTI_122315_1415 TOTALS **Matrix Type:** Water
Lab Sample Name: 680-120839-9 **Sample Date:** 12/23/2015 2:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	18000	200	24	ug/L			
Calcium	T	7440-70-2	370000	500	25	ug/L			
Iron	T	7439-89-6	74000	50	17	ug/L			
Magnesium	T	7439-95-4	19000	500	33	ug/L			
Potassium	T	7440-09-7	2100	1000	17	ug/L			
Sodium	T	7440-23-5	2900	1000	480	ug/L			

Analysis Method 200.8

Sample Name GSTO-F_122315_1230 TOTALS **Matrix Type:** Water
Lab Sample Name: 680-120839-1 **Sample Date:** 12/23/2015 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	5.4	1	0.4	ug/L			
Arsenic	T	7440-38-2	87	1	0.37	ug/L			
Barium	T	7440-39-3	16	2	0.14	ug/L			
Beryllium	T	7440-41-7	28	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	160	0.5	0.043	ug/L	E		
Chromium	T	7440-47-3	12	2	1	ug/L			
Cobalt	T	7440-48-4	220	0.4	0.12	ug/L			
Copper	T	7440-50-8	14000	1	0.5	ug/L	E		
Lead	T	7439-92-1	86	0.3	0.06	ug/L			
Manganese	T	7439-96-5	55000	2500	1200	ug/L			
Molybdenum	T	7439-98-7	8.9	1	0.45	ug/L			
Nickel	T	7440-02-0	130	1	0.4	ug/L			
Selenium	T	7782-49-2	7.6	2	0.58	ug/L			
Silver	T	7440-22-4	0.19	1	0.1	ug/L	J	J	
Thallium	T	7440-28-0	0.26	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	65	1	0.3	ug/L			
Zinc	T	7440-66-6	72000	20000	2800	ug/L			

Sample Name GSTI_122315_1415 FILTERED **Matrix Type:** Water
Lab Sample Name: 680-120839-10 **Sample Date:** 12/23/2015 2:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic, Dissolved	D	7440-38-2	1.3	1	0.37	ug/L			
Barium, Dissolved	D	7440-39-3	9.1	2	0.14	ug/L			
Beryllium, Dissolved	D	7440-41-7	5.8	0.4	0.15	ug/L			

Analysis Method 200.8

Cadmium, Dissolved	D	7440-43-9	49	0.5	0.043	ug/L		
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U
Cobalt, Dissolved	D	7440-48-4	67	0.4	0.12	ug/L		
Copper, Dissolved	D	7440-50-8	3400	1	0.5	ug/L		
Lead, Dissolved	D	7439-92-1	2.9	0.3	0.06	ug/L		
Manganese, Dissolved	D	7439-96-5	24000	2.5	1.2	ug/L	E	
Molybdenum, Dissolved	D	7439-98-7	0.7	1	0.45	ug/L	J	J
Nickel, Dissolved	D	7440-02-0	45	1	0.4	ug/L		
Selenium, Dissolved	D	7782-49-2	1.8	2	0.58	ug/L	J	J
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U
Thallium, Dissolved	D	7440-28-0	0.18	0.2	0.1	ug/L	J	J
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U
Zinc, Dissolved	D	7440-66-6	14000	20	2.8	ug/L	E	

Sample Name A72_010816_1230 TOTALS **Matrix Type:** Water

Lab Sample Name: 680-120839-11 **Sample Date:** 1/8/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	2.1	1	0.37	ug/L			
Barium	T	7440-39-3	21	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.52	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	2.4	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	10	0.4	0.12	ug/L			
Copper	T	7440-50-8	53	1	0.5	ug/L			
Lead	T	7439-92-1	9.3	0.3	0.06	ug/L			
Manganese	T	7439-96-5	2100	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	1.1	1	0.45	ug/L			
Nickel	T	7440-02-0	8.7	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	1.5	1	0.3	ug/L			
Zinc	T	7440-66-6	860	20	2.8	ug/L			

Sample Name A72_010816_1230 FILTERED **Matrix Type:** Water

Lab Sample Name: 680-120839-12 **Sample Date:** 1/8/2016 12:30:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	

Analysis Method 200.8

Arsenic, Dissolved	D	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium, Dissolved	D	7440-39-3	150	2	0.14	ug/L	F1	J-	Q
Beryllium, Dissolved	D	7440-41-7	0.22	0.4	0.15	ug/L	J	J	
Cadmium, Dissolved	D	7440-43-9	2.6	0.5	0.043	ug/L			
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt, Dissolved	D	7440-48-4	11	0.4	0.12	ug/L			
Copper, Dissolved	D	7440-50-8	26	1	0.5	ug/L			
Lead, Dissolved	D	7439-92-1	0.36	0.3	0.06	ug/L			
Manganese, Dissolved	D	7439-96-5	2400	2.5	1.2	ug/L			
Molybdenum, Dissolved	D	7439-98-7	0.45	1	0.45	ug/L	U	U	
Nickel, Dissolved	D	7440-02-0	9.7	1	0.4	ug/L			
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc, Dissolved	D	7440-66-6	990	20	2.8	ug/L			

Sample Name GKM-GSTO-F_01052016_1300 TOTALS **Matrix Type:** Water

Lab Sample Name: 680-120839-2 **Sample Date:** 1/5/2016 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	5.7	1	0.4	ug/L			
Arsenic	T	7440-38-2	85	1	0.37	ug/L			
Barium	T	7440-39-3	20	2	0.14	ug/L			
Beryllium	T	7440-41-7	41	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	240	0.5	0.043	ug/L	E		
Chromium	T	7440-47-3	14	2	1	ug/L			
Cobalt	T	7440-48-4	330	0.4	0.12	ug/L			
Copper	T	7440-50-8	23000	1	0.5	ug/L	E		
Lead	T	7439-92-1	100	0.3	0.06	ug/L			
Manganese	T	7439-96-5	78000	2500	1200	ug/L			
Molybdenum	T	7439-98-7	8.5	1	0.45	ug/L			
Nickel	T	7440-02-0	190	1	0.4	ug/L			
Selenium	T	7782-49-2	11	2	0.58	ug/L			
Silver	T	7440-22-4	0.25	1	0.1	ug/L	J	J	
Thallium	T	7440-28-0	0.28	0.2	0.1	ug/L			
Vanadium	T	7440-62-2	81	1	0.3	ug/L			
Zinc	T	7440-66-6	110000	20000	2800	ug/L			

Analysis Method 200.8

Sample Name		GSTO-C_122315_1300 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-5		Sample Date:		12/23/2015 1:00:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	7.9	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	4.5	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	11	0.4	0.12	ug/L			
Copper	T	7440-50-8	26	1	0.5	ug/L			
Lead	T	7439-92-1	1	0.3	0.06	ug/L			
Manganese	T	7439-96-5	15000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.5	1	0.45	ug/L			
Nickel	T	7440-02-0	20	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.14	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	240	20	2.8	ug/L			

Sample Name		GKM_GSTO-C_010516_1205 TOTALS					Matrix Type: Water		
Lab Sample Name:		680-120839-7	Sample Date:		1/5/2016 12:05:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.37	1	0.37	ug/L	U	U	
Barium	T	7440-39-3	8.2	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U	U	
Cadmium	T	7440-43-9	4.8	0.5	0.043	ug/L			
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	12	0.4	0.12	ug/L			
Copper	T	7440-50-8	35	1	0.5	ug/L			
Lead	T	7439-92-1	0.19	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	15000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	1.4	1	0.45	ug/L			
Nickel	T	7440-02-0	19	1	0.4	ug/L			
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.14	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	

Analysis Method 200.8

Zinc	T	7440-66-6	270	20	2.8	ug/L			
Sample Name	GSTI_122315_1415 TOTALS					Matrix Type: Water			
Lab Sample Name:	680-120839-9		Sample Date: 12/23/2015 2:15:00 PM						
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	1.9	1	0.4	ug/L			
Arsenic	T	7440-38-2	23	1	0.37	ug/L			
Barium	T	7440-39-3	9	2	0.14	ug/L			
Beryllium	T	7440-41-7	6.9	0.4	0.15	ug/L			
Cadmium	T	7440-43-9	46	0.5	0.043	ug/L			
Chromium	T	7440-47-3	2.2	2	1	ug/L			
Cobalt	T	7440-48-4	67	0.4	0.12	ug/L			
Copper	T	7440-50-8	3600	1	0.5	ug/L	E		
Lead	T	7439-92-1	26	0.3	0.06	ug/L			
Manganese	T	7439-96-5	24000	2.5	1.2	ug/L	E		
Molybdenum	T	7439-98-7	3.4	1	0.45	ug/L			
Nickel	T	7440-02-0	46	1	0.4	ug/L			
Selenium	T	7782-49-2	2.1	2	0.58	ug/L			
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.18	0.2	0.1	ug/L	J	J	
Vanadium	T	7440-62-2	17	1	0.3	ug/L			
Zinc	T	7440-66-6	14000	20	2.8	ug/L	E		

Analysis Method 245.1

Sample Name		GSTO-F_122315_1230 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-1	Sample Date:		12/23/2015 12:30:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		GSTI_122315_1415 FILTERED				Matrix Type: Water			
Lab Sample Name:		680-120839-10	Sample Date:		12/23/2015 2:15:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		A72_010816_1230 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-11	Sample Date:		1/8/2016 12:30:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 245.1

Sample Name		A72_010816_1230 FILTERED				Matrix Type: Water			
Lab Sample Name:		680-120839-12	Sample Date:		1/8/2016 12:30:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		GKM-GSTO-F_01052016_1300 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-2	Sample Date:		1/5/2016 1:00:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		GSTO-C_122315_1300 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-5	Sample Date:		12/23/2015 1:00:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		GKM_GSTO-C_010516_1205 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-7	Sample Date:		1/5/2016 12:05:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Sample Name		GSTI_122315_1415 TOTALS				Matrix Type: Water			
Lab Sample Name:		680-120839-9	Sample Date:		12/23/2015 2:15:00 PM				
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	